

WHAT IS CLAIMED AS NEW AND IS INTENDED TO BE SECURED BY LETTERS
PATENT IS:

1. A container comprising:

at least one layer comprising a thermoplastic polyester, and

5 at least one layer comprising a mixture of two ethylene-vinyl alcohol copolymers B1

and B2,

wherein said mixture of B1 and B2 has a morphology in which particles of B2 are dispersed in B1, said mixture of B1 and B2 exhibits at least two crystal fusion peaks in its differential scanning calorimetry (DSC) and satisfies the following formulae (1) to (7):

10 $60/40 \leq WB1/WB2 \leq 90/10$ (1)

$25 \leq ETB1 \leq 40$ (2)

$99 \leq SDB1$ (3)

$35 \leq ETB2 \leq 48$ (4)

$92 \leq SDB2 \leq 99$ (5)

15 $8 \leq ETB2 - ETB1 \leq 23$ (6)

$1 \leq SDB1 - SDB2 \leq 8$ (7)

and,

WB1 is the amount by weight of B1 in the mixture,

WB2 is the amount by weight of B2 in the mixture,

20 ETB1 is the mol% ethylene in B1,

ETB2 is the mol% ethylene in B2,

SDB1 is the % saponification of B1, and

SDB2 is the % saponification of B2.

25 2. The container of Claim 1, wherein one layer comprising B1 and B2 is contacted on each face thereof with a layer of said thermoplastic polyester.

3. The container of Claim 1, wherein pellets of the mixture are injection-molded, and the particles of B2 dispersed in B1 have a mean particle size of at most 0.8 μm .

4. The container of Claim 1, wherein B1 and B2 have melt indices (in units of g/10 min, measured at 190°C under a load of 2160 g) MIB1 and MIB2, respectively, which satisfy

formula (8):

$$0.1 \leq MIB1/MIB2 \leq 10 \quad (8).$$

5. The container of Claim 1, wherein the thermoplastic polyester has an intrinsic viscosity IVA (in units of dl/g) which satisfies the following formula (9) and the mixture of B1 and B2 has a melt index MIB (in units of g/10 min, measured at 190°C under a load of 2160 g) which satisfies the following formula (10):

$$0.60 \leq IVA \leq 0.90 \quad (9)$$

$$0.1 \leq MIB \leq 10 \quad (10).$$

10. 6. The container of Claim 1, wherein the body of said container has a haze value of at most 5 %.

7. The container of Claim 1, wherein said container is a stretch-blow molded container.

8. The container of Claim 7, wherein the capacity of said container is at most 800 ml.

9. A preform for a container comprising:

15 at least one layer comprising a thermoplastic polyester, and
at least one layer comprising a mixture of two ethylene-vinyl alcohol copolymers B1 and B2,

20 wherein said mixture of B1 and B2 has a morphology in which particles of B2 are dispersed in B1, said mixture of B1 and B2 exhibits at least two crystal fusion peaks in its differential scanning calorimetry (DSC) and satisfies the following formulae (1) to (7):

$$60/40 \leq WB1/WB2 \leq 90/10 \quad (1)$$

$$25 \leq ETB1 \leq 40 \quad (2)$$

$$99 \leq SDB1 \quad (3)$$

$$35 \leq ETB2 \leq 48 \quad (4)$$

$$92 \leq SDB2 \leq 99 \quad (5)$$

$$8 \leq ETB2 - ETB1 \leq 23 \quad (6)$$

$$1 \leq SDB1 - SDB2 \leq 8 \quad (7)$$

25

and,

WB1 is the amount by weight of B1 in the mixture,
WB2 is the amount by weight of B2 in the mixture,
ETB1 is the mol% ethylene in B1,
ETB2 is the mol% ethylene in B2,
5 SDB1 is the % saponification of B1, and
SDB2 is the % saponification of B2.

10. The preform of Claim 9, wherein one layer comprising B1 and B2 is contacted on each face thereof with a layer of said thermoplastic polyester.

11. The preform of Claim 9, wherein pellets of the mixture are injection-molded, and
10 the particles of B2 dispersed in B1 have a mean particle size of at most $0.8 \mu\text{m}$.

12. The preform of Claim 9, wherein B1 and B2 have melt indices (in units of g/10 min, measured at 190°C under a load of 2160 g) MIB1 and MIB2, respectively, which satisfy formula (8):

$$0.1 \leq \text{MIB1/MIB2} \leq 10 \quad (8).$$

15 13. The preform of Claim 9, wherein the thermoplastic polyester has an intrinsic viscosity IVA (in units of dl/g) which satisfies the following formula (9) and the mixture of B1 and B2 has a melt index MIB (in units of g/10 min, measured at 190°C under a load of 2160 g) which satisfies the following formula (10):

$$0.60 \leq \text{IVA} \leq 0.90 \quad (9)$$

20 $0.1 \leq \text{MIB} \leq 10 \quad (10).$

14. A polymer blend comprising two ethylene-vinyl alcohol copolymers B1 and B2, wherein said blend of B1 and B2 has a morphology in which particles of B2 are dispersed in B1, said mixture of B1 and B2 exhibits at least two crystal fusion peaks in its differential scanning calorimetry (DSC) and satisfies the following formulae (1) to (7):

25 $60/40 \leq \text{WB1/WB2} \leq 90/10 \quad (1)$

$$25 \leq \text{ETB1} \leq 40 \quad (2)$$

$$99 \leq \text{SDB1} \quad (3)$$

$$35 \leq \text{ETB2} \leq 48 \quad (4)$$

$$92 \leq SDB2 \leq 99 \quad (5)$$

$$8 \leq ETB2 - ETB1 \leq 23 \quad (6)$$

$$1 \leq SDB1 - SDB2 \leq 8 \quad (7)$$

and,

- 5 WB1 is the amount by weight of B1 in the blend,
WB2 is the amount by weight of B2 in the blend,
ETB1 is the mol% ethylene in B1,
ETB2 is the mol% ethylene in B2,
SDB1 is the % saponification of B1, and
10 SDB2 is the % saponification of B2.

15. The polymer blend of Claim 14, wherein the particles of B2 dispersed in B1 have a mean particle size of at most 0.8 μm .

16. The polymer blend of Claim 14, wherein B1 and B2 have melt indices (in units of g/10 min, measured at 190°C under a load of 2160 g) MIB1 and MIB2, respectively, which 15 satisfy formula (8):

$$0.1 \leq MIB1/MIB2 \leq 10 \quad (8).$$

17. The polymer blend of Claim 14, wherein the blend has a melt index MIB (in units of g/10 min, measured at 190°C under a load of 2160 g) which satisfies the following formula (10):

20 $0.1 \leq MIB \leq 10 \quad (10).$

18. A process for preparing a stretch-blow molded container comprising:
coinjection molding a preform, and
stretch-blow molding said preform, thereby forming a stretch-blow molded container,
wherein said preform comprises:

25 at least one layer comprising a thermoplastic polyester, and
at least one layer comprising a mixture of two ethylene-vinyl alcohol copolymers B1 and B2,
wherein said mixture of B1 and B2 has a morphology in which particles of B2 are dispersed in B1, said mixture of B1 and B2 exhibits at least two crystal fusion peaks in its

differential scanning calorimetry (DSC) and satisfies the following formulae (1) to (7):

$$60/40 \leq WB1/WB2 \leq 90/10 \quad (1)$$

$$25 \leq ETB1 \leq 40 \quad (2)$$

$$99 \leq SDB1 \quad (3)$$

5 $35 \leq ETB2 \leq 48 \quad (4)$

$$92 \leq SDB2 \leq 99 \quad (5)$$

$$8 \leq ETB2 - ETB1 \leq 23 \quad (6)$$

$$1 \leq SDB1 - SDB2 \leq 8 \quad (7)$$

and,

10 WB1 is the amount by weight of B1 in the mixture,

WB2 is the amount by weight of B2 in the mixture,

ETB1 is the mol% ethylene in B1,

ETB2 is the mol% ethylene in B2,

SDB1 is the % saponification of B1, and

15 SDB2 is the % saponification of B2.

19. The process of Claim 18, wherein the particles of B2 dispersed in B1 have a mean particle size of at most 0.8 μm .

20. The process of Claim 18, wherein B1 and B2 have melt indices (in units of g/10 min, measured at 190°C under a load of 2160 g) MIB1 and MIB2, respectively, which satisfy formula (8):

$$0.1 \leq MIB1/MIB2 \leq 10 \quad (8).$$

21. The process of Claim 18, wherein the thermoplastic polyester has an intrinsic viscosity IVA (in units of dl/g) which satisfies the following formula (9) and the mixture of B1 and B2 has a melt index MIB (in units of g/10 min, measured at 190°C under a load of 2160 g) which satisfies the following formula (10):

$$0.60 \leq IVA \leq 0.90 \quad (9)$$

$$0.1 \leq MIB \leq 10 \quad (10).$$

22. The process of Claim 18, wherein the body of said container has a haze value of at most 5 %.